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Health as an objective of summer camps for boys.

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THESIS

HEALTH AS AN OBJECTIVE OF SUMMER CAMPS FOR BOYS: THE METHOD AND EXTENT TO WHICH IT IS DEVELOPED.

Submitted by

James A. Wylie

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First Reader: Frederick P. Rogers, Dean, Department of Health and Physical Education

Second Reader: Earl A. Brooks, Professor of Biology

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INTRODUCTION

We find that camping in its best sense, is an adventure and as such it was begun. We cannot trace it back to its inception unless we limit, very definitly, the definition we apply to camping, and the beginnings of what we know as the permanent summer camps, are hidden in considerable obscurity.

The first summer camp for boys, Camp Chocorua, was organized by Ernest Balch in 1881. Camp Dudley, founded by Summer F. Dudley in 1885 on Lake Champlain, is the oldest organized camp in existence today.

It is quite obvious that the camping movement, as such, had developed since 1900, for prior to that time there were but twenty-two camps known to have been in existence. (1)

As the years have passed the conditions that gave rise to the need for organized summer camps became aggravated. The cities grew larger, the summer vacations with their leisure time sent boys and girls into the city streets, and the trend of urbanization brought less room for play areas. The result was an arising of a great many organized summer camps. They have constantly grown until there are today some 7,367 organized childrens camps in the country attended by 1,062,500people annually. (2)

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(1) Sargent, Porter A HANDBOOK OF SUMMER CAMPS 6th edition 1929 Page 24.

(2) White House Conference On Child Health Section III C VI 1929

As we mentioned before, camping at its inception, both by groups and individuals, began as an adventure and very shortly came to have other very definite objectives. Chief among these objectives was health.

We find that Ernest Balch, who organized Camp Chocorua, the first summer camp for boys, in 1881, wrote; "I first thought of the organized camp as an institution in 1880. The miserable conditions of boys belonging to well-to-do families in summer hotels, considered from the point of view of their right development, set me looking for a substitute." (1)

Porter Sargent writes, "Camp Directors are moved by a common purpose; to give to the young people in their charge a summer of happy, wholesome out-of-door activity, to the end that their bodies, minds, and characters---especially their bodies shall be stronger in the fall." (2)

H.W. Gibson, speaking of the purposes of parents in sending their children to camp says: "Safety, health and happiness are without doubt the fundamental considerations of the parents." (3)

Dimock and Hendry inattempting to discver the campers ideas of what they thought was the most valuable thing that they could get from camp, used part of the "Summer Camp Test." This test is used at Camp Ahmek at the begining and the end of the camp season. Touse their words: "This part of the test requested the boy to tell as clearly as

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L) Camps and Camping 1929 P 38 American Sports Pub. Co.
2) Sargent, Porter A HANDBOOK OF SUMMER CAMPS 8th Ed. P. 16
3) Gibson, H.W. ADMINISTRATIVE PROBLEMS Monthly Library on Camping. Vol. IX P. 45 1927

you can what you think are the biggest things a boy gets out of camp." (1)

As a result of this test, and mentioned by thirty-three boys we find, listed in third place; "Better health, physical fitness, posture, etc." (2)

From these statements by men of authority and the boys themselves we can see that health is considered one of the important objectives of camp by directors, parents and campers.

The statements of J. Edward Sanders and John Dewey were the factors that prompted this study. Their statements follow:

J. Edward Sanders; "There has been a tendency to assume among both parents and camp leaders, that the mere fact that a child is in camp is proof sufficient that his health is being benefited, his physical stamina and vitality increased." (3)

John Dewey: "To profess to have an aim and then neglect the means of execution is self-delusion the most dangerous sort. When we take ends without regard to means we degenerate into sentimentalism. In the name of the ideal we fall back upon merely luck and chance and magic, or exhortation and preaching." (4)

These statements leave, in our minds, the question, How do we know we are improving the health of the campers? This question in turn leads us to the problem.

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1) Dimoch and Hendry CAMPING AND CHARACTER 1929 P 17
2) Ibid. P. 18
3) Sanders, J. E. SAFETY AND HEALTH IN ORGANIZED SUMMER CAMPS P 80
4) Dewey, John (Not known)

THE PROBLEM

Ever since the first summer camp for boys was organized by Ernest Balch, in 1881, the objective "health" has held an important position in the reasons for sending a boy to camp during the summer months.

Camp Directors constantly refer to health in their camp circulars. Most often we find something of this sort: "send your boy back home in the fall in better health."

If we allow this statement to be accepted as a truth without first testing it fo its reliability we are making a serious mistake.

To what extent does the average camp try to prove, in an objective manner, that they are returning the boy in better health? How many camps can, with any degree of truthfulness, say that they have improved the health of the boys as a result of a stay at their camp? Have they any figures?

In most cases the camp physican, usually a medical student, makes a health examination of the boy on the day the latter arrives in camp. The heart, lungs, blood preasure, skin hernia etc. are probably considered. Any serious deviation from the normal is immediatly noticed and a record made of it and kept in the files. The camp doctor then probably forgets about the boy for the remainder of his stay at camp except to treat him for sunburn, cuts, etc. It would be true also that the boys who had any serious abnormality would be kept in mind because they would stand out boldly in a group of normal boys.

The day the boy leaves for home he receives a second health examination covering the same items examined in the first inspection.

The findings of the two examinations are compared in order to discover what improvement of health has resulted.

Undoubtedly the boy, because of his environment, will have many more cuts, scratches, bruises, etc. than when he first came to camp.

If the camp physician is to judge from such data and the health examination, then he will probably have to say that the boy is now in poorer healththan when he arrived. Is this necessarily so?

When we consider this haphazard method of measuring health, if we may call it measurement of health, we wonder if we are measuring health at all. It seems to be merely a matter of guessing in the light of our professed objectives.

All these considerations lead us to the problem and its subordinate divisions:

HEALTHAS AN OBJECTIVE OF SUMMER CAMPS FOR BOYS: THE METHOD AND EXTENT TO WHICH IT IS DEVELOPED.

The underlying problems are:

1) To determine the factors necessary for development of good health.

2) To determine the factors present in organized summer camps.

3) To determine the individual changes in health as a result of a stay at camp.

4) To determine the reasons for loss in health.

5) To determienthe reasons for gain in health.

6) To determine the value of specific activities in the development of health.

7) To determien the correlation between gain in weight and improvement in health.

8) To determine the length of stay most beneficial to the development of health.

By arriving at conclusions from the facts to be presented we hop to demonstrate the degree to which health is achieved and how to measure for individual differences in the light of the program to be presented to individual campers.

METHOD OF APPROACH

In approaching the problem the first step necessary was the selection of a valid and reliable measure of health.

The Physical Fitness Test was selected as the best measure because it provided the necessary validity and reliability as well as a mathematical index which classified the health condition.

This test was given to each camper the day he arrived in camp and also on the day he left camp. The difference between the two scores was the resultant change in health.

The use and purpose of the Physical Fitness Test was carefully explained to each boy before he took the test. This enabled us to create a great interest in the test and its results. This interest, on the part of the boys, assured us of a manimum score for each boy.

A very accurate testing program was instituted. On one occasion a boy was tested by five examiners, each sepeializing on one piece of apparatus. When the boy had completed the test he failed to return the results to the examiners. When the cards were checked his card was found to be missing. When asked where his card was he failed to remember and as a result, on the following day, he was given a second test. Later during the same day he returned the first card to us staing that he had found it in his shirt pocket. The two scores were compared and the results were idnetical.

In order to discover, from both the boys' and their parents, just what they thought had borught about this change in health we sent each a questionnaire.

The questionnaire to the boys asked the following:

1) Why do you think your score was raided or lowered during your stay at camp?

2) In which sports did you participate the most while at camp? Please place first the one you played most, etc.

3) Did your food seem apetizing?

4) Did you have sufficient food?

5) Did you enjoy your stay at camp? Would you have stayed longer if you had had the opportunity to do so?

6) What did you like least about camp?

7) What did you like most about camp?

8) Did you have any illness, while at camp, that made your stay less pleasant? If so, what was it?

9) In what ways could camp be improved?

The questionnaire to the parents asked:

1) What were the results of your sons' stay at camp?

2) What is your opinion of the report of your son's stay at camp, activities, health, and physical fitness report which was sent you immedialty after camp closed? Which interested you most?

3) Have you noticed any new health habits that your son has acquired as a result of his stay at camp?

4) Do you have any comments or suggestions to make?

The questionnaire was made out in the more or less subjective form because we did not want to give any leading questions. We felt that by listing qualities, habits, factors and activities that we might get a "padded" reply.

The physical fitness test and questionnaire was given to one hundred and forty-two campers. All these campers were not at camp for the same length of time but for periods varying from two to eight weeks.

Of the one hundred and forty-two questionnaires sent out seventy were returned.

No consideratio was taken of the questionnaire sent to the parents because of the fact that they were poorly answered and also because so few of them were returned.

SUBJECTS STUDIED.

All the experimenting and testing was done at Camp Waubeeka, Copake, N. Y. during the summer months of July and August 1932.

Camp Waubeeka is a camp sponsored by the Bronx Valley Council of the Boy Scouts Of America.

The boys for this camp are drawn chiefly from the following towns and cities in New York State: Mt. Vernon, Bronxville, Crestwood, Tuckahoe and some from Yonkers and New York City.

As is well known the scouting program reaches the well-to-do, the average and the poorer classes of boys. This is exceptionally true of this camp. Quite a number of the boys tested came from very well-todo families, the large majority from families of average means and a considerable number of them were so called "charity cases." Those falling in the latter catagory were sent to camp by "service clubs" and charity organizations.

Many of the boys tested were of foreign born parentage.

From the above it is readily seen that we have an excellent cross section of the typical population of almost any part of the country and that the group is in no way especailly picked.

The camp, as has already been pointed out, is a Boy Scout Camp. The program is more or less like that of the majority of scout camps. The daily programs consist of scouting instruction in the morning, team and group games during the afternoon and early evening, and campfires, dramatics and singing which form the basis of the later

evening program.

Hikes, swimming, canoeing and special trips are also special features of the program.

The camp takes particular pride in the leadership it has. Every possible effort is made to obtain the very best leadership possible. A great share of the camp income, greater than almost all the scout camps and many private camps, is pent in salaries for leadership.

DEFINITIONS

As one can readily see, it is necessary in a study of this type that all terms to be used should be carefully defined in order that we may interpret the data in the same light.

Health: Health for the purposes of this study is intended to mean:

"Health implies soundness of functioning--that condition of any living organism, including its various parts and functions, which conduces to the greates amount of purposeful activity." (1)

Objective: Objective is a goal toward which we are striving.

Development: An internal expansion or progress to a more perfect state.

Measurement: Determination of progress.

Physical Fitness: Is intended to mean capacity for activity and is meant to be synonymous with health as herein defined.

1- Rogers, Fredrick. Rand. Fundamental Administrative Measures In Physical Education.

THE FACTORS EXXENTIAL TO THE DEVELOPMENT OF GOOD HEALTH

Health seems to have much to do with our happiness. It aids the attainment of personal ambitions, increases the opportunity for cultural improvement, and permits more of us to live longer, more cheefrul and useful lives.

Since the recognition of the fact that there are certain important factors which regulate and control our health there has been a great deal of scientific and historic study which has rewritten the story of human life. As the result of this study old ideas have little or no sanction today, and the civilized nations of the world have, for the most part, left behind the ideas of asceticism with its contempt for the physical.

The desirability of good health is assumed by the majority of the people without question; and as a result of the assumption there has been an ever increasing growth of leaders, organizations and the people themselves who are devoting time and energy to the fulfillment of a new responsibility for health.

Health is influenced by many factors all of which can probably be best classified under the following three headings:

1) Hereditary influences----------(biological)

2) Conditions of the environment before and after birth----(physical and social)

3) Reactions of the individual to the environment. (personal) (1)

Hence growth and efficiency of function are then dependent upon hereditary factors, conditions of environment and manner of living.

Hereditary factors can be controlled only through eugenic methods. No one has the power to choose his parents; the present generation is responsible for the heritage of the coming generations.

The force of heredity is clearly indicated by Conklin: (2)

"Furthermore, from its earliest to its latest state of development it is one and the same organism; the egg is not one being and the embryo another, and the adult a third, but the egg of a human being is a human being in the one-celled state of development, and the characteristics of the adult develop out of the egg and are not in some mysterious way grafted upon it or transmitted ot it." (2)

What an individual has a birth, of constitution, health vigor and disease resistence, is made up, for the most part, of what his parents gave him in the germ-plasm from which he developed.

L) Williams, J. F. Personal Hygiene Applied P 37
2) Conklin, E.G. Heredity and environment P 108

"It must be understood, however, that the development of any one person is conditioned by the environment into which that one comes, and one of good heredity may achieve less in real work and real success than one with heredity not so good, but placed in a better environment. Parents need to be concerned not only with the heredity they convey to their children but also with the sort of social and physical environment they prepare for them." (1)

Hence we can see that the second factor in the development of health is also very important. The environment consists of (a) the economic resources which enable or govern the ability to provide for the essentials of life, (b) climate (c) medical attention and d) sanitation.

By essentials of life we mean a great many things. It is a very broad term and it is almost impossible to clearly define what we mean by it because of the lack of space--- however the terms themselves set standards such that everyone knows what the minimum should be.

A. The Essentials Of Life.

1) Proper shelter and clothing to protect against the elements. The clothing and shelter should be of a quality that will not embarrass the individual to too great an extent.

2) Fresh Air--This is one of the important environmental factors which can be at least partially controlled. Oxygen is absolutly essential to life. However, in our present day life, it is not the danger of the lack of oxygen or the increase of carbon dioxide sufficient to endanger life but rather the fact that there is a discomfort from

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1) Willims, J. F. PERSONAL HYGIENE APPLIED P 39

unpleasant odors, annoying draughts, etc. Never-the-less extremes of heat, cold, humidity or air motion are recognized as not only uncomfortable but as detrimental to health and working efficiency.

3) Food-- The average length of life has been definitely increased during the past fifty years, and much of this increase and improvement has come from the application of the principles of sanitation. However, best health cannot be secured through sanitation alone. The ability to know how to select a diet with nutriment requirements which will enable one to resist attacks of common micro-organisms, to produce off-spring equal in vigor with the parents, and to fit for sustained and higher activity.

It is possible for children to make a certain amount of growth inspite of an inadequate diet, but good development is dependent upon all the elements needed by the body. These are: (a) proteins to build and repair body tissue, (b) foods to furnish heat and energy, (c) minerals to build bones and teeth, (d) vitamins to promote growth and to amintain health, (e) water, (f) and bulk.

4) Sleep--There are many environments that inhibit sleep. The bedroom may adjoin the living-room and the noise of taling of the older children and adults may prevent sleep. Oftentimes the room may overlook a very busy street an elevated line, or perhaps too many children sleep in the same room.

All this is conducive to the lack of sleep. Sleep and rest are as vital to ones' health as are the habits of food and exercise. During sleep the body grows; a tired body repairs itself and becomes strong again. Sleep is the only time in which the mind, nervous system and muscles have any degree of complete rest.

We all recognize that there are qualitative and quantitative types of sleep; hence we must admit that it is rather difficult to set aside a certain number of hours for sleeping. We cannot establish a rule as to the number of hours one should sleep. The needs of the individual best determine this. However we must say that the hour of retiring and arising should be regular for the best results.

B. Climate: Climate, itself, is a secondary consideration. Of course everyone cannot choose the best climate in the world, but after all, the main advantages of fresh air and sunshine can be enjoyed in almost any locality. It is true however, that one, under ordinary circumstances, can move from an excessively damp climate to a comparatively dry climate, without traveling a great many miles.

The common prejudice against damp air greatly exaggerated its evils. While moderate dryness of air is advantagious, it seems never-the-less true that to live in damp, even foggy, air out-of-doors is in general more healthful than to live shut up indoors. However we do admit that there are individual cases in which dampness is considered tobe very detrimental and often times provocative of ill-health.

C. Medical Attention: It is well to recognize that the preservation and the development of health is not the function of one group, but should be the interest of all people. However when preventive measures have failed we must have the aid of medical experts to restore health. This service is rendered by physicans, hospitals and clinics.

"There is little evidence that soundness of body is sufficient to protect persons against influenza, typhoid fever, dipheheria, malaria, hookworm infection, or many other of the common communicable diseases. Infection depends upon the sieze of the dose of the infecting organism, the virulence of the organism, and the relative susceptibility of the individual person. As a rule, this susceptibility depends more upon the presence or absence of immune substances in the blood stream and the body cells than upon general bodily efficiency." (1)

Consequently, it is necessary to take measures to prevent the spread of infection, to reduce the likelihood of exposure to infectious diseases and to extend the protection afforded by vaccination and other means of immunization. This naturally requires the development of a system of sanitation.

D. Sanitation is usually provided by the local government. Every community has itts local sanitary laws which are usually adequate and rigidly enforced. If a community fails in this service the state department of health, in charge of sanitation, usually steps in. Any lack of sanitation can probably be immedialty cured by means of local cooperation between the inhabitants and the sanitation department. The chief means of achieving a high degree of cleanliness and

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1) HEALTH EDUCATION Joint Committee Report P 43

sanitation is not by merely inforcing the laws but by educating the people to what is good and bad in this respect. We are, however, bound to have a minimum standard enforced by the local government, hence, in the long run, we have little or nothing to say regarding it.

The third and last factor of health is the personal reaction of the individual to the environment. Here we have considerations that hinge upon the environment itself but are chiefly composed of reactions, attitudes, and a knowledge of what promotes and lowers health along with judgment and self-direction on the part of the individual.

The first of these is:

1) Exercise: Exercise and play are natural activities of childhood and should carry on in some form or another into adulthood. Exercise helps to develop the muscular system, stimulate the appetite for wholesome food and promotes digestion. We must have a balance between exercise, play, rest and sleep if we are to be healthy.

J. M. Tyler says that the development of the muscular system is very important, in the following quotation:

"We must never forget that the development of the muscular system carries with it the development of our most important viscera, kidneys, lungs, heart and blood vessels and as we shall see later, the brain itself." (1)

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1) Tyler, J.M. GROWTH AND EDUCATION P 26

Beyond this, outdoor games and exercise is desirable because of the beneficial effect of the direct sunshine and the opportunity for developing social adjustments.

2) Sleep: Sleep has been mentioned before as an environmental factor. It has, however, some very important personal aspects. One should learn to fix certain definite hours for retiring and arising. Once they are set they should seldom be broken. The sleep should be taken with the windows open and with light covers if possible. The habit of extending the sleeping period beyond actual needs should not be encouraged. We may suggest possible number of hours that one of a certain age needs but we should not enforce these standards. We must remember that each one has his individual needs and also that there are qualitative and quantitative aspects to sleep.

3) Avoidance of tobacco and infections: One should avoid tobacco especially during the years of growth because; "(a) it affects growth at an age when strength and vigor are needed for development; needless dirversion of bodily processes required for repairing physical or mental injuries likely to be caused by tobacco, (b) drug effect tends to require increasing use, to tie one up to it, to make it difficult to get along without it, (c) effects an skill (experiments with baseball throwing, and target practice, etc.), (d) inconvenience; habit may cause discomfort and therefor inefficiency when for any other reason tobacco cannot be

obtained or is forbidden on accout of health. (e) Needless expense at an age when most young people feel they do not have all the money they would like to spend and should be saving and planning for more education or a fund to start in business." (1)

Infections in the form of disease, colds, and injuries divert the strength of the body from natural processes to one of repair. Hence there is a period where growth and rebuilding stops and all available energy is used to "hold on to" what one already has. In many cases of infections there are serious effects which seriously influence the health by leaving definite defects, such as impaired hearing, poor vision, etc. or perhaps a general weakened condition of the body which will leave the body open to another attack of a similiar type.

4) Mental hygiene: This (mental hygiene) has taken on a new interest because of the changing attitude on the part of medicine as to what is included under the term of health. It was formerly supposed that a human being could be simply divided into mind, soul and body.

"Mental hygiene includes the study of habit life of the school period, and evaluation of moods and cravings, impulses and imaginations, andplay reactions and social relationships. Here are the factors of daily human experience and are of vital importance in preparing an individual for life." (2)

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1) HEALTH EDUCATION Joint Committee Report P 230
2) Ibid. P 87

Under mental hygiene also comes the aspect of "enjoying what one does." When this is possible the law of effect operates and there should be an educational development of all in the selection of higher activities in life for both recreational and business interests.

As these factors are undeniably valid, we must admit that health is, to a certain degree, controllable. To the extent that we control, govern and improve these factors we improve the health.

An absence or an unbalanced association of these factors will bring a corresponding decrease in health.

As all this is undeniably true it is most essential that we consider these factors when we try to develop or improve health. They are the tools with which we work. The improvement of each factor should bring us, in a corresponding degree, nearer the achievement of our objective---health.

Summary:

The understanding that health plays such an important part in our capacity for activity and the achievement of our goals has lead us to realize that health has certain quantitative and qualitative aspects.

The lealization leads us to understand that there must be certain definite factors of health.

The findings were that heredity, environment (both social and physical, and the reaction of the individual to the environment play an all important part in the determination of health.

FACTORS OF HEALTH PRESENT IN THE CAMP STUDIED.

"Safety, health and happiness are without doubt the fundamental consideration of the parents" (1) says H. W. Gibson when speaking of the parents' reasons for sending their boys to summer camps.

Our study of camp directors, founders, and the boys themselves proved that, in their minds, health was a fundamental objective of camping.

Naturally if the camping program is going to have health as one of its objectives its leaders must know which of the factors of health are present in the summer camp and the importance each plays in the development of health.

When we turn to the factors of health we discover heredity is first on the list. From our previous study we discovered that heredity can be controlled only through eugenic methods. With this comes the realization that the generations of today are responsible for the heretage of tomorrow Hence the logical conclusion is that it is impossible for any camp to improve the heritage of anyboy regardless of his stay at camp. His heritage is his birth.

The next chief factor is physical and social environment. In this we can use Metchnikoff's statement to determine the importance of environment.

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1) Gibson, H.W. ADMINISTRATIVE PROBLEMS The Monthly Library on Camping. Gibson Publications. Watertown, Mass. Vol. IX page 45 1927

"Many of the most serious obstacles to health are environmental." (2)

Regarding the environment of summer camps Professor Fretwell, of Columbia University says:

"The environment of the camp, the way of living after the manner of the trail and the camp, furnished a favorite opportunity to become, as well as to remain, vitally fit." (3)

Let us proceed and see just what makes up the environment of the camp studied. There is hardly a doubt but that this same environment is duplicated time and time again throughout the country.

A. As classified before---The Essentials of Life:

(1) Proper Shelter--all boys live in log cabins--eight boys to a cabin. The cabins have screened windows and doors. The floors are boarded and raised a foot or so from the ground. The roof of each is covered with a slate composition. The result being that we have a cabin that is almost entirely rain-proof. Most frequently the cabins have only five or six boys during the season.

The clothing is meager for the day time. Shoes, shorts, and if desired, a shirt usually makes up the apparel used by most boys. When weather is colder a shirt or sweater is worn for additional protection. If the weather is rainy a raincoat is used. As a rule the weather is seldom really uncomfortable during the months of July and August. This last summer, when this study was made, was what one would call almost perfect.

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(2) Metchnikoff, E. PROLONGATION OF LIFE P 40

(3) Fretwell CAMPING AS EDUCATIVE EXPERIENCE Teachers College Record P 748

weather for camping. Every boy who comes to camp is usually provided with sweaters and a raincoat. If this is not the case the camp loans him one for the period of his stay.

(2) Fresh Air----Nothing can offer more fresh air than a camp away from all cities and in the woods. Here the air is pure and free from obnoxious gases from factories, motor vehicles, etc. There is no reason why we would have to be concerned about the air except that it might be located near a swamp. This is not the case in the camp studied for it is situated in an excellent location.

Under fresh air we usually include sunshine. Naturally we can do nothing to provide this but we do keep our activities out-of-doors and suggest that the clothing worn be of a type that much of the body is exposed to the direct rays of the sun.

(3) The food provided at the camps studied is fresh, wholesome and good. At each meal there is always plenty of food prepared and there is no reason for anyone to leave the table even the slightest bit hungry.

The menu is prepared and checked by a dietitian in one of the hsopitals in the city from which most of the boys come.

The meals are prepared by an expert chef, who, during the winter months, cooks for a large hotel in New Jersey.

All foods are strictly fresh and appetizingly prepared The meat is shipped into camp each morning packed in ice. The vegetables and fruits are purchased each day from a

wholesaler who deals directly with the farmers in the vicinity of the camp.

The milk is purchased from a dairy twenty miles from camp. All milk is pasteurized and each boy receives a quart a day for drinking purposes.

(4) SleepL The camp has adopted somewhat the attitude of Terman, who says:

"As regards the school child, in all probability, the wisest course is for us to make the conditions such that the child will sleep as many hours perday as he wants to sleep. We shoul avoid either abbreviating or unduly prolonging the sleep beyond this standard. Liberal allowances also should be made for individual differences. There are probably idiosyncracies which make nine hours of sleep for one child equivalent to eleven hours for another." (1)

Naturally such a program as Terman suggests would not be very applicable to a summer camp where a certain degree of routine is absolutly necessary in the regulation of a hundred or so boys. So the following adaptions have been made:

Except on special occasions the retiring hour is nine-thirtyP.M. and the rising time is seven-thirty A.M. This allows ten hours for sleeping. Should anyone feel that he is unduly tired or needs more sleep all he has to do is to report to his leader that he is going to bed early. Then he can leave any activity at a time that he feels that he should retire.

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(1) Terman, L. N. THE INTELLIGENCE OF THE SCHOOL CHILD P 372

A record of this is kept and if it occurs too often he is refered to the doctor who makes a study of the boy. He then makes any recommendations that he feels are necessary. A boy may arise at any hour in the morning before the regular hour, provided he does not arouse and disturb any of the other boys in his cabin. However any continued early arising must be reported to the leader in charge of the group.

Rest: Each afternoon immedialty after dinner the boys are required to remain in their cabins for an hour. All play activities and work are suspended at this time. Quiet games, reading, etc., are suggested as a means for passing time during this hour. The daily program of activities are planned in such a way that one activity does not follow immediatly after another but that there is a short interval between for rest and relaxation.

B. Climate: Naturally it is impossible for a camp to select its weather but it is possible for a camp to be situated in a region where the climate is such that the weather is not too damp, dry, cold nor warm.

Activities are so regulated that there is little need forthe boys being out in poor weather. So we can say that the location of a camp definitly determines this for all time. The camp studied is in an excellent situation in this regard.

C. Medical Attention: In camp the boys undoubtedly receive better care along this line than when they are at home. A doctor is constantly in camp and when ever a boy feels slightly "under the weather" all he has to do is to

report to the doctor. If his leaders notice he is not looking acting or eating well, they send him to see the doctor. Each morning an inspec ion is given each boy by the doctor and a leader. A word or two is spoken to each boy and any indicat ion of a flush, pallor, rash, etc. is carefully investigated.

A hospital with an emergency room and a sick bay with three beds is on the camp grounds. Should the nature of any illness seem really serious the camp doctor, who is a third year medical student, is told to call a physician from a near-by town.

D. Sanitation: The camp doctor is in charge of all sanitation and makes two trips about the entire camp each day, once in the morning and once at night. All latrines are chemical depositories and are entirely satisfactory. All garbage is removed each night from the camp grounds by a local farmer who manages to use much of it for his hogs.

The drinking water and the lake are tested for purity before the camp begins, each summer by the State Health Department. It has been recognized that the water should be tested more often and such reommendations will be made.

The third and last factor of health is the personal reaction of the individual to the environment. It is possible to say that some of these aspects are environmental but we consider that they have, in the summer camp, a personal reaction because of the fact that the reaction of the boy determines how much he will participate in the following:

(1) Exercise: All exercise and play are carefully regulated by the director of athletics. This man is a trained physical educator who knows the physiological limits of boys and carefully plans his programs with these in mind.

It is one of his duties to see that no one plays, or works who for any reason has been told by the doctor to abstain from any heavy exercise for any reason at all. Should a boy play until it is evident that he is endangering his health because of fatigue the director immediatly removes him from the game.

The play tkaes the form of all sorts of games, team, individual and group, during the afternoon and the early evening. Swimming and boating are also allotted special times on the program. Special trips, hikes, etc. are conducted from time to time.

Every one is encouraged to participate in some form of game during the day. Special forms of exercise and play are afforded those who find that they have little or no interest in team games.

(2) Sleep: The sleeping conditions have been discussed under the environmental conditions. We try to give individual cases any help we can in the arrangement of bedding, etc. We try to impress upon them the importance of sleep and the effect that the loss of it has on the body. Usually there's very little difficulty about sleep habits because of the fact that when they find it is time to retire they are usually tired

enough to enjoy it.

(3) Avoidance of tobacco and infection: The rules of the camp, regarding smoking are unusually strong. No camper is allowed to smoke. No leader may smoke in any part of the camp except in the leaders' cabin. This prevents any boy from obtaining cigarettes from the leaders or even see them smoke in most cases.

Any boy with any type of infection is immediatly isolated from the remainder of the camp unless it is of a nature that is not considered very contagious. "Athlete foot" cases are not allowed to go swimming nor walk about their cabin barefooted. As yet no serious infectious disease has reached the camp. Colds are treated as soon as they are discovered and severe cases are kept for a day or two in the camp hospital until they are improved. All injuries must receive treatment by the doctor on the day they occur. This has prevented any infection of a serious nature at camp.

(4) Mental Hygiene: Good mental hygiene at camp is not an easy end to reach. The camp endeavors to give the boys activity enough to keep them busy and happy. The leadership is possibly the best that can be obtained for a camp of this sort. During the past summer as many activities as possible that stressed winning, were eliminated from the program. Group competition was eliminated in all but one or two events. Every attempt was made to make each boy happy and to improve his comradship with other boys through new and wholesome social

and physical experience.

Summary:

From the preceding survey we would say that, as a camp of average means, it had carefully considered all the factorsoof health in so far as it was possible, in providing a healthful program for the campers.

The best possible shelter, food, facilities for sleeping, medical attention, sanitation, activities and exercise were provided through the medium of the camp itself and its leaders. Every attempt was made to inculcate the proper health habits and mental hygiene through its daily program.

What the results of these efforts were will be discovered in the succeeding chapters.

THE RESULTS OF A STUDY IN CHANGES OF HEALTH IN BOYS AS A RESULT OF A STAY AT CAMP WAUBEEKA.

Since the development of health is an important aim of most summer camps; and since there is a common recognition of the fact that there are certain important factors which regulate and control our health we must know to what extent the health may be changed as a result of a stay in an organized summer camp.

A study and test was made of each of one hundred and forty-two campers. Each boy recieved a medical examination and also a physical fitness test the day he arrived in camp and also one the day he left camp. The difference between the two scores shows, in the form of a mathematical index, the extent to which the health had been affected.

The medical examination was used to discover whether or not it was advisable to give the physical fitness test. In some cases because of a weak heart or a possible hernia condition it is often deemed advisable not to give the test because it is possible to aggravate the condition present.

The physical fitness tests comprise the Sargent Strength tests, to which Dr. Fredrick Rand Rogers has worked out a set of norms. Briefly, the test comprises the factors of height and weight and a battery of seven dynamic tests including lung capacity and strength measurements of the muscles of the left and right forearms (grips), upper arms and shoulder girdle (pull-ups and push-ups), and back and legs.

The scores made by each pupil in the separate items of the test are added and constitute the individuals strength index. By dividing this achieved Strength Index by the norm for the age an weight of the individual, a quotient called the "Physical Fitness Index" (P.F.I.) is thus calculated.

Previously we mentioned that this test was selected because of the fact that it had a high degree of validity and reliability.

Quite naturally it is needless for us to show here the validity and the reliability of this test. Should anyone be interested in learning more of these tests we suggest that he read the following two books:

1) Physical Capacity Tests. By Dr. Fredrick R. Rogers.

2) Fundamental Administrative Measures In Physical Education. By Dr. Fredrick Rand Rogers.

However in the light of our definition of health we will use the following statement by Dr. Rogers:

"A test is a valid measure of health if it measures human activity or capacity for activity." (1)

Beyond any doubt this test measures the individuals capacity for activity.

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1) Rogers Fredrick Rand. Fundamental Administrative Measures of Physical Education. Page 27.

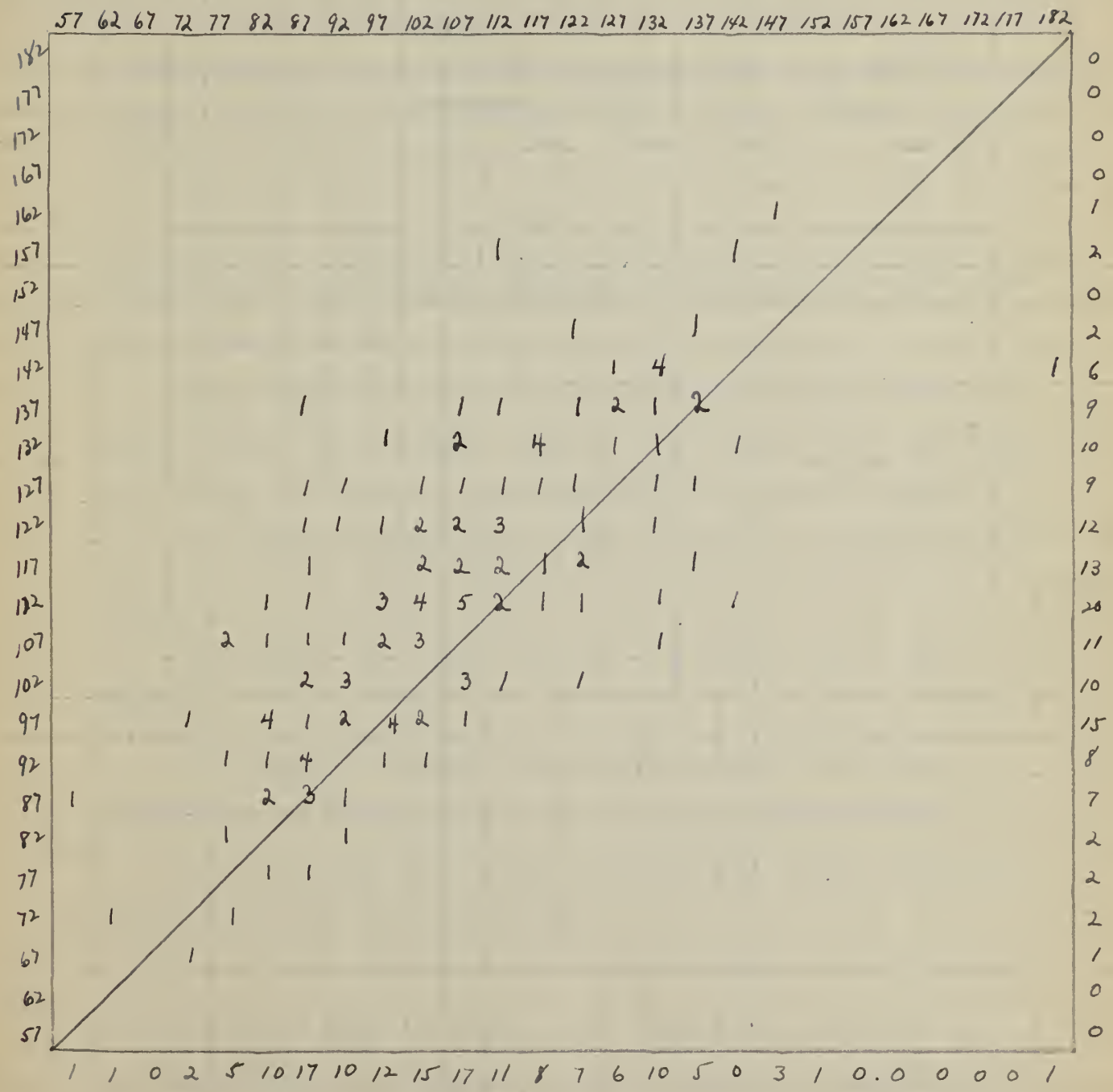
One of the very important values of this test is that a mathematical index is obtained which adequately classifies the health condition in an objective manner.

This index provides an excelletn point from which to measure progress. The index numbers are classified as below normal, normal, and above normal, Any number below one hundred is considered as below normal, any number between one hundred and one hundred and twenty-five is considered as normal, and any number above one hundred and twenty-five is considered as above normal.

On page 36 there is a scattergram which reveals the effects of camping on health as a result of a stay at a particular camp, namely Camp Waubeeka, the camp studied.

CHART ONE

P.F.I. Scattergram. Reveals The Effects Of Camping On Health During A Stay At Camp. Figures To The Left Of The Diagonal Line Indicate The Number Of Boys Whose Physical Fitness Increased During Their Stay At Camp.



AN ANALYSIS OF THE SCATTERGRAM.

The average Physical Fitness Index, on the first test; that is the one given when the boy first arrived in camp, was one hundred and five. The second test average; the test given the day the boy left camp, was one hundred and thirteen. As can readily be seen the average increase was eight points a boy.

More specific reults were:

1) One hundred and five boys increased their scores showing that they had an increase in health as a result of their stay at camp.

2) Forty-one boys, of the above, increased their scores from below normal to normal or above. This indicated that forty-one boys who were definitly in need of improvement, improved considerably as the result of their stay at camp.

3) Thirty-one boys lost, to a certain extent, in health.

4) Twenty of these losses were so small as to be considered as insignificant and in no way detrimental.

5) Ten boys had a loss in health whcih was sufficient to be classified as detrimental.

These intrepretations show that certain of the factors of health had been at work. Some favorably, that is, in the development of greater health and some unfavorably in the destruction of capacity for activity.

THE CHANGES FOR THE GROUPS WERE AS FOLLOWS:

1) The boys who increase their P.F.I. from below normal to very nearly normal, normal and above normal had an average increase of sixteen and one-tenth points.

2) The boys who increased their P.F.I. from normal to above normal had an average increase of twelve and one-fifth points.

3) Those boys whose score decreased to below normal had an average decrease of six points.

4) Those boys whose score decreased slightly or to normal had an average decrease of thirteen and eight-tenths points. None of these scored lower than average.

5) Those boys who increased their scores from above average to higher had an average increase of ten and one-half points.

6) Those boys who increased their scores from average to higher had an average increase of twenty-one points.

When we turn to the measurement of the results of our work and try to determine the extent to which we have achieved our aims we are startled to see that the results are not all they could have been.

What is the matter with my program? is the vital question that arises in our minds.

In an analysis of the results we will keep in mind three questions:

1) Why did certain boys improve in health?

2) Why did certain boys remain practically constant in health?

3) Why did other boys lose in health?

REASONS ADVANCED FOR THE LOSS OF HEALTH.

Possibly the best method of approach to this problem is an acknowledgemnt that the factors of health have not had the proper influence or balance in the life of those boys whose health failed.

J. Edward Sanders reports in his study, "Health and Safty in Organized Summer Camps" that the following are the reasons for failure to gain in health;

1) "Although individual health needs differ most camps subject all individuals to the same general routine which means that some may suffer therefrom.

2) We find that in the camps of the group a majority of the children probably are not getting as much sleep as they need, this shortage seeming at times to be very serious.

3) It is altogether possible that some camps do not give enough, or the right kinds of food, the shortage in quantity probably being felt most severely by the older campers.

4) It is altogether possible that many campers come to the close of a camp season in a state of physical and nervous exhaustion, a result of prolonged and almost unbroken strenous activity." (1)

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1) Sanders, J. Edward SAFETY AND HEALTH IN ORGANIZED SUMMER CAMPS. Page 90.

We will approach this problem of loss of health from the following three aspects:

1) The camp, its facilities and program.

a. In the light of Sanders' reasons.
b. In the light of other possible reasons.

2) The boys statements as to why they think they lost in health.

3) An analysis of the various cases by the experimentor.

THE CAMP: ITS FACILITIES AND PROGRAM.

Sanders:

"Although indi viduals health needs differ most camps subject all individuals to the same general routine which means that some may suffer therefrom."

Let us study just what the camp had in the line of real routine:

1) A definite time was set when each boy was required to be in bed.

2) A definite time was set when a boy was required to arise in the morning.

3) A definite time was set for all meals.

4) Certain precautions were taken regarding hiking swimming, and boating which made for routine participation.

Regarding the first of these; the time to retire. A boy, as mentioned before, if tired was allowed to go to bed at any hour in the evening up until the required hour for going to bed. This should enable him to get at least ten hours for sleeping--more if he felt that he needed it.

The rising hour: Very few boys, in our experience have ever complained of having too much time for sleeping. However any boy who felt that he would like to arise more early could do so provided he did not disturb any other campers.

The meal time: Naturally it is impossible for any camp to conduct a caffeteria. All meals have to be scheduled at regular hours. The best authorities in health say that we should form regular habits of eating and eat at regular scheduled times.

Precautions regarding hiking, boating, and swimming are essentials. They are our only safeguard against endangering life and as such are indispensible.

All organized exercise, play, etc. is scheduled for certain definite periods. However there is no reason for anyone not participating in an activity if he feels that he would like to do some particular thing.

Hence, we would say that in this camp studied, Sanders first reason is not very likely to be applicable.

Regarding Sanders second reason:

"We find that in the camps of the group a majority of the children are not getting as much sleep as they need, this shortage seeming at times to be very serious."

It is entirely impossible to make or help a boy to sleep. The best we can do is to provide him with a comfortable cot, warm blandets, sufficient hours to sleep and

exercise enough to cause the boy to become tired enough to go to sleep readily. If we keep him happy with purposeful activity he will have, as a rule, nor reason for not sleeping.

Our evaluation of this is that it is entirely possible for any camp to have boys who require more sleep than they are getting, but we feel that in the camp studied there were very few if any boys who needed more sleep.

Regarding Sanders thrid cause:

"It is altogether possible that some camps do not give enough, or the right kinds of food, any shortage in quantity probably being most severe among the older boys."

In the camp studied, as mentioned before, the diet was prepared by a reliabel and efficient dietitian. Hence we have every reason to assume that the kinds of food were right.

No boy had any reason for leaving the table hungry. Plenty of food was always prepared. Each group of boys on coming to camp were told that if they did not have enough to eat they were to report it to the camp director and he would see that they go enough.

Analysis of the camp studied would beyond a doubt show us that this was not a factor which was neglected. Regarding Sanders fourth cause:

"It is altogether possible that many campers came to the close of the camp season in the state of physical and nervous exhaustion as a result of prolonged and almost unbroken strenuous activity."

The physical exhaustion Sanders speaks of is undoubtedly due to the lack of sleep, rest, and over participation in physical activity. The sleep aspect and the precautions taken at the camp have already been discussed here. Rest periods have been made compulsory immediatly following the noon meal, during the heat of the day. This period is of one hour's huration and during this time no heavy physical activity may take place; rest is suggested for all.

The possibility of over-production is quite remote. At all contests and games the physical director is responsible for the health of the boys. At any sign of difficulty or over-strain the boy would be cautioned. The camp doctor is also usually present at most of these games so there is an extra check in this respect.

Regarding the mental attitude and nervous exhaustion, every camp director knows that there are cases present in his camp. Some of these he knows about and others he does not. The efforts made to build up the proper mental attitude in the camp studied have already been discussed.

All camp workers recognize the fact that mental attitude is one of the factors of health that we have been able to do very little about. Up to the present times all we have been able to do is to guess what the effect of this poor hygiene is. The cases reported below will give a very definite idea as to the effect that it may have on the health.

Case One.

Two boys, twins, age thirteen years and nine months.

These boys were very active physically, and had good appetites, and were to all outward appearances enjoying themselves.

R----G---- had a physical fitness index on entering camp of 148 and on leaving camp of 113.

L----G---- had a physical fitness index on entering camp of 132 and on leaving camp, 116.

The boys stayed at camp for the entire season, eight weeks. Two such losses, particularly in brothers, among so many gains, attracted our attention.

A personal interview by a leader in the confidence of the boys revealed that the following was true:

Their father had left the family without any provision for the future, and ran away with another woman. While he was away, and the boys were at camp, the mother lost her position and was subsequently asked to move because of non-payment of rent. The boys constantly worried about the fact that their mother had no means of support nor home.

What was going to happen to them? This constantly preyed on their minds.

When this had been uncovered we realized that we had found the reason for the decrease in health. If we had given the tests more frequently perhpas the loss would have been noted sooner and the cause discovered and the boys' minds

greatly relieved by getting their mother some work. They would have then been able, like most of the other boys, to build up a reserve of strength for the winter and been that much more healthy.

Case Two:

A----H--- Eleven year, nine months old. At the begining of his stay at camp his P.F.I. was 104.

The boy, from his reactions and attitude, was soon marked by the campers as being one who had been "spoiled" at home.

This was A---'s first stay away from home. After two weeks at camp his mother decided that he should come home. However the father isnisted that the boy remain in camp. At the end of the first two week period the boy's P.F.I. had increased to 106. The boy according to his own reports, up to this time, was "having a great time."

In the following weeks his mother wrote him often telling him how much she missed him. With these letters came the desire, on the part of the boy, to go home to his mother. His father again insisted, at the end of the second two week period that the boy stay another two weeks. His score at this time had decreased to 103. He became so determined to go home, during the third period that when the last day arrived he was allowed to go home. At the end of his stay we found that his P.F.I. had decreased still further to 99, now below normal. This example indicated that the mental attitude of the boy regarding home and camp was a very important factor in the maintaniance and development of health, for no other cause

was discernible.

Case Three:

Two boys, brothers, H---H--- 14 years, 5 months old. On entering camp had a P.F.I. of 94.

E----H---- 12,years, four months old. On entering camp had a P.F.I. of 89.

Both boys were signed up to stay at camp for one two-week period. At the end of this time they said that they were going to Canada, for two weeks, with their parents. A day or two before they were to go home they received word that they would have tostay at camp an additional two weeks because the parents had found it necessary to go to Canada without them. Up to this time, the end of the first two weeks H----H---- had increased his P.F.I. to 95 and E---H--- had increased his to 92.

The boys objected to staying in camp for the extra two week period. Their mental attitude toward camp had changed very noticably as a result. At the end of this second period H----H----'s P.F.I. decreased to 90, a loss of five points and E-----H----'s P.F.I. decreased 11 points to 81.

This case seemed to point out the fact that even when boys had made an appreciable gain in health as a result of a short stay in camp it was possible, by enforcing them to take the wrong mental attitude toward what had been necessary, to remove all the previous benefits accumulated by them.

TABLE TWO

Frequency table Number Two: The effect camp had on campers when they enjoyed their stay; Also whether they would have stayed longer, if it would have been possible; and the change in health as shown by the physical fitness index.

Attitude	Loss	Constant	Gain	Total
Enjoyed stay at camp.	7	2	54	63
Did not enjoy stay	0	0	0	0
Total	7	2	54	63
Would stay longer	6	2	44	52
Would not stay longer	1	0	7	8
Undecided	0	0	3	3
Total	7	2	54	63

ENJOYMENT AS A FACTOR AFFECTING MENTAL HEALTH.

It is interesting to know that there was not a single camp, of those who returned the questionnaire, who said he did not enjoy his stay at camp. However we do know that among those who did not return the questionnaire there were one or two cases that did not enjoy their stay at camp.

On page 48 there is a frequency table showing the effect camp had on campers when they enjoyed their stay. This enjoyment of their stay may be considered an important part of their mental attitude.

An analysis of this table shows the following:

A. Enjoyment:

1) Eighty-six percent of the boys who enjoyed their stay at camp improved their health.

2) Elven percent of the boys who enjoyed their stay at camp lost in health.

3) About three percent of the boys who enjoyed their stay at camp remained constant in health.

B. Would stay longer:

1) About 85 percent of the boys who would have stayed longer gained in health.

2) About eleven percent of the boys who would have stayed longer lost in health.

3) About three percent of the boys who would have stayed longer remained constant in health.

C Would Not stay Longer:

1) Eighty-seven percent gained in health.

2) Thirteen percent lost in health.

3) No campers remained constant.

D. Undecided:

1) One hundred percent gained in health.

We mentioned that enjoyment of what one does is very important in the development of the proper mental attitudes.

It is natural to assume that the Law Of Effect operates in camp as well as anywhere else. Those activities that we enjoy doing we will repeat time and time again. Those activities that do not have any joy attached to them will probably be avoided.

So it is important to know what the likes and dislikes of the campers are so that we can get their attitudes toward the activity program.

On pages 52 and 53 will be found two frequency charts. One chart shows the dislikes and the other the likes of the boys regarding camp.

TABLE NUMBER THREE

Frequency table number three: Things boys liked most about camp and the change in health as shown by the Physical Fitness Tests.

Activities and Items Mentioned	Number of boys who showed a loss.	Number of boys who showed a gain.	Number of boys who remained constant.
Athletics	4	15	1
Hikes, trips	4	13	2
Swimming	1	10	0
Scout Tests	2	8	0
Everything	0	6	0
Sportsmanship	1	2	0
Plenty doing	0	3	0
Good Times	0	2	0
Canoes	3	2	0
Dramatics, plays	2	2	0
Camp paper	0	2	0
Routine	0	2	0

Mentioned once each: All in the gain column; sleeping hours, opportunity for all to play, camp spirit, change, out-of-doors, food, leathercraft, friendly atmosphere, circus.

TABLE NUMBER IV

Frequency Table # 4: Dislikes of boys at camp and the chagne in health as shown by the Physical Fitness Index.

Activities and Items Mentioned	Number of boys who showed a loss.	Number of boys who showed a gain.	Number of boys who remained constant.
Hikes	2	6	0
Swimming	2	4	0
Cabin Inspection	0	3	0
Mosquitoes	0	2	0
Waiting on tables	0	3	0
Campfires	0	3	0

Mentioned once each in the gain column; not enough food, baseball, short swims, no lights in cabins, attitudes of older campers, treasure hunts, changing boys about in the cabins, get up too early, go to bed too late.

Mentioned once each in the loss column: not enough food, not enough hikes, hikes not long enough, routine, latrine duty, sports.

INFECTIONS AND ILLNESS.

"In some cases immunizations are the only satisfactory methods of building capacity to resist an infection. In others, infection may be successfully withstood if the body is sufficiently healthy. Colds may possibly be an illustration of this since persons who are fatigued, "run down", are supposedly more susceptible to colds than persons at a higher level of health." (1)

Naturally it is reasonable to believe that the health conditions in a camp are influenced to a great measure by the way they handle the health problem.

The camp studied had an excellent health record; when considered in the light of absence from illnesses and injuries. Only those cases which came to the attention of the camp doctor are mentioned here. It is important to note that there was a very noticable absence of any serious diseases or accidents during the entire summer.

(1) Sanders, J. Edward SAFETY AND HEALTH IN ORGANIZED SUMMER CAMPS. Page 107.

On page 56 there is a frequency table showing the relation between the illnesses and accidents, the number of cases and the average effect they had on the health of those who had that trouble. It is important to note that no average has been taken on less than five cases. However all cases are reported in the table.

TABLE NUMBER V

Frequency Table # 5: Showing the number of accidents and illnesses and the effect they had on the health of the campers, as shown by the physical fitness test.

Illnesses and accidents.	Number of Cases of Each.	Average P.F.I. Increase of those having the ailment.
Blisters of hands and feet.	32	14.3
Colds	25	9.0
Sore throats	21	8.0
Cuts	17	5.4
Ringworm	14	12.0
Sprains, strains, bruises	14	.8
Nausea	9	17.0
Infected wounds	9	6.5
Poison Ivy	7	17.0
Constipation	5	9.2
Conjunctivitis	4	
Sunburn	4	
Boils	3	
Earache	3	
Insect bites	3	
Upset stomach	2	
Stye	1	

AN ANALYSIS OF TABLE NUMBER V

We must remember that the average increase in Physical Fitness was, for the entire camp, eight points. Any variation below that in the cases reporting illnesses or accidents are probably to a large extent due to that difficulty.

It is interesting to note that of the entire ten averages only three show a decrease in Physical Fitness. They are:

1) Sprains, strains, and bruises: The campers suffering from these ailments had an average increase of only eight-tenths of a point. The total loss being seven and two-tenths points.

2) Cuts: The campers suffering from this ailment had an average increase of five and four-tenths points; which is two and six-tenths points below the average.

3) Infected wounds: Those showing infected wounds had an average increase of six and five-tenths points; which is a decrease below average of one and a half points.

THE LACK OF THE PROPER AMOUNT OF EXERCISE

A. Cases considered "detrimental."

In the survey of the health of the boys at camp we said that there were ten boys who had decreases in health that were sufficient to be classified as "detrimental". We explained that the reason for this loss of health for five of these boys under our study of the mental aspects of the study, and that it is interesting to note, now, that four of the remainder are beyond a doubt due to the lack of sufficient exercise.

Case Number One.

W----B---- Thirteen years, eight months old. His first P.F.I. was 80 and the second 75.

W----B---- was a boy who did not have a great deal of ambition, push or interest in anything. He did however manifest his greatest interest in leatherworking, and scout tests.

W----B--- went swimming only twenty times during his five week stay at camp. During this time he did not use the canoes, go on any special trips such as the vagabond or canoe trips, enter a single track event, participate in a swimming meet. He would play only when invited especially by some leader. When the game was in progress for a short time he would invite some boy to take his place and then he would leave the game.

We have no reason for his non-participation in activities. The camp program was such that a boy was required to do only

those things that he really wanted.

Case Number Two.

A----G---- Fifteen years and four months old. His first P.F.I. was 96 and his second 86.

A----G---- was not a very social boy. He was greatly interested in nature work. He would go off, by himself, for hours and "listen to the birds, collect leaves, flowers and plants."

During his two weeks at camp he went swimming only eight times. He did not go on any special trips such as the Vagabond or Canoe Trips. He entered no swimming or Atheletic events whatever. Whenever a team game was in progress he would be off some place so that he could not be reached nor asked to participate in the game.

CaseNumber Three.

G---S--- Eleven years and ten months old. His first P.F.I. was 85 and the second was 80.

G----S---- was a boy who constantly wanted to be with the camp leaders. He was evidently a "spoiled boy" at home. One leader who he liked was delegated to try and "make a man of him" by keeping him active and helping to learn to play with other boys.

He went swimming only fiften times during his four-week stay. He did not go on any of the special trips, use the canoes, enter a track or swimming meet. He liked to play quoits but that was all. He had no other game skills and did not care to learn any. On four occasions he was

excused from day and overnight hikes that were compulsory for the majority of the boys because his"feet hurt him."

Case Number Four.

A---J--- Fifteen years and eight months old. His first P.F.I. was 76 and his second was 68.

When one had to classify or describe him one would say Just a fat lazy boy.

A----J--- went swimming only eight times during his four weeks stay at camp. He never went on any special trips entered eight swimming events and no track events. He used the canoes only twice during his stay at camp. The total time he used the canoes was one hour.

He was excused from all day and overnight hikes because of flat feet.

The only game he would play was baseball. He was quite adept as a catcher and in all a fairly good player.

From a study and analysis of these cases the most apparent feature is that these boys have failed to get any fair amount of exercise. None of these boys had any other difficulty that we know of and from our study of the boys we believe that their loss in health was due to the lack of sufficient exercise.

It is also interesting to note that not one of these boys returned the questionnaire sent him. If they had returned the questionnaire it would have been possible for us to see why they thought that their physical fitness had declined.

Losses Considered As Insignificant.

Our losses in health, were classified intwo groups; those that were detrimental and those that we considered not detrimental. The latter classification was based on the fact that there was a very small loss or that the loss was a decrease from above normal to more nearly normal.

It has been impossible for us to disover the reasons for losses in all the cases. This is due to the fact that we do not have sufficient information regarding some of the boys and in other cases we do not see any real apparent reason for a loss because all the factors seem to be definitly balanced; that is at the present time we admit that we do not understand them in any way.

We will now turn to a few representative cases illustrating the loss which is apparently not very important.

G----E---- Eighteen years and ten months old. His first P.F.I. was 123 and the second 102.

This boy worked all year round ina printing establishment and came to camp to spend his two weeks vacation. He planned "to take it easy for two weeks" , as he stated it.

G----E---- entered no swimming meets, entered only four events out of eleven in an open all day track meet. He had but one eye, being blind in the other. As a result, as a younger boy he felt handicapped inathletics and did not learn to play any team games to any extent. The result was that he did not want to go out and play with younger boys who were better players than he, while he was at camp.

The only team game in participated in was volleyball. He spent much of his time walking about the countryside. He was allowed this privilige because of his age.

When asked why he did not participate in the games he repeatedly remarked--"I'm up here for a rest and they are too much work."

This decrease has been considered not very important because we realize that the boy had purposely suspended practically all heavy exercise and was taking a good rest. We know that this decrease is bound to come with this inactivity and that he will regain what he lost when he goes back to work again. Very likely he will go still higher in physical fitness when he returns to work because of the rest he obtained at camp.

Case Number Two.

W---- fourteen years and two months old. His first P.F.I. was 146 and the second 119.

W---- was kept in the camp hospital for four days during his stay at camp with a bad cold and a sore throat. For two or three days after his release he was told to "take it easy" As a result of this illness he did not participate in any of the regulary scheduled or special hikes.

W---- went swimming only six times during his stay and participated in no swimming or athletic meets.

Because of his restricted program he spent much of his time studying for and passing scout tests.

Case Number Three.

T----S- --- Fourteen years, six months old. His first P.F.I. was 135 and the second 124.

A very tall awkward boy. T--- went swimming only four times during his two week stay, entered no athletic or swimming meets. The only games he would play were quoits and volleyball. He did not go on any of the special trips or hikes. He took great pride in the fact that he passed many scout tests. He advanced to the Rank of Eagle Scout. This had been his acknowledged aim in coming to camp.

Case Number Four.

W-----G----- Thirteen years and eleven months of age. His first P.F.I. was 151 and the second 134.

W----G----- was an unusual boy. He was very quiet and reserved. Two years ago while at camp he was almost drowned and was only revived by a pulmotor. When he first camp he was exceedingly afraid of the water.

The reason he came to camp was to learn to swim. This was the one and only reason. His folks had been told of the success that had been achieved in teaching boys to swim at the camp studied so they decided to take another chance.

He was excused from all day and overnight hikes because he was given swimming instruction everyday, three times a day. At the endof his two-week stay he had learned to swim sufficiently well to pass the American Red Cross Beginners Award.

He had practically no activity other than swimming. Even the swimming was not a great amount of exercise because he did not stay in the water for any considerable length of time.

From these cases mentioned it is hoped that we have been able to show what we mean by losses that are insignificant. None of these cases had a score that was lower than normal at the end of their stay. We mentioned previously that it is sometimes advisable to lower a very high score because we feel that it is just as possible for a boy to be over developed ans underdeveloped.

All these cases show a very definite lack of exercise and it is to this that we turn in making our analysis.

CAUSES FOR LOSSES NOT LACK OF EXERCISE

Physical Strain Before the Tests.

Case Number One.

G----H---- Seventeen years and one month of age. His first P.F.I. was 110 and the second, 104.

G--- the day he took the second test had just come back from a two day hike and was rather tired. He was given the test that night only because his father was going to call for him later that evening and bring him home.

Case Number Two.

E----C---- Seventeen years and ten months of age. His first P.F.I. was 121 and the second, 115.

E---- had just participated in a track meet. After supper he was playing basketball when he was called to the telephone. His father was going to call for him very early in the morning and take him away to vacation with him.

The result was we had to give him the test that evening while he was very tired. This undoubtedly was the cause for his decrease because no other reasons seemed apparent.

Case Number Three.

L----B----- Fourteen years and six months of age. His first P.F.I. was 132, the second, 136 and the third 128.

L--- was at camp for four weeks when his parents decided that they would take him with them on their vacation.

At the end of this four-week stay he had increased his physical fitness four points. At the end of two weeks with his parents he came back to camp. We did not get a test of him when he entered the second time.

The third test showed that his physical fitness test had decreased to 128, a drop of eight points. It is only reasonable to assume that the two weeks he spent on the automobile tour with his parents caused most of this loss. He also says, in answer to why he thinks that he lost in health, "because I did not get enough exercise. I spent most of my time passing scout tests."

We have had a discussion of reasons, advanced by J. Edward Sanders, that might have caused and did cause losses in health and also some of the cases studied that were the result of the program of testing that was conducted.

At this time it might also be advantageous to see why the boys themselves thought that they decrease in health.

On page 67 there is a frequency chart showing the campers reasons why they thought their health had changed as a result of their stay at camp.

This chart shows both the increases and decreases. At the present time we will interest ourselves with the losses only.

ANALYSIS OF CHART NUMBER VI

We find that eight boys reported reasons for their decrease in physical fitness.

1) Four boys state that they believe that it was due to the lack of exercise.

2) Two boys state that they believe that blisters on their hands affected their score. By this they mean that the blisters affected the reliability of the second test.

3) One boy believes that a stiff back handicaped him in the test.

4) One boy reported that he was tired out from a hike. This is not the same case as reported in the case discussed previously.

TABLE NUMBER VI

Frequency Table # 6 Showing the campers' reasons why they thought their health changed while at camp.

Reason	Loss	Constant	Gain
Greater activity, more exercise	0	0	31
Food, regular meals	0	0	18
Out-of-doors, freshair	0	0	15
More sleep, plenty sleep	0	0	10
Hiking, hikes, etc.	0	0	6
Not enough exercise	4	0	0
Canoeing	0	0	4
Enjoyed what I did	0	0	4
Controlled athletics	0	0	3
Regular habits	0	0	2
Regular Rest periods	0	0	2
Not eating sweets, nor between meals	0	0	2
Calisthenics	0	0	2
Morning Dip	0	0	2
Blisters on hands	2	0	0
Stiff back	1	0	0
No reason to change	0	1	0
Total	8	1	102

REASONS ADVANCED FOR THE DEVELOPMENT OF HEALTH IN CAMPS

When we discover that we have improved health to a certain degree we believe that the boy had been endowed with a heredity wich is conducive to health improvement, the environment is good, and lastly that the personal reaction toward the environment is all that it could be.

However, when we realize that some boys develop better health than others while at the same camp we wonder what the reason may be.

It is fairly safe to assume that all those who are in the same camp are subjected to the same physical environment More definitly, they are sharing the same shelter, the same type of clothing, fresh air, food, climate, medical attention and sanitation.

The only other factors which are not constant for all the boys are:

1) Sleep
2) Avoidance of tobacco and infection.
3) Mental attitude.
4) Exercise.

We feel, however that adequate time is allowed for all boys to get the sleep and rest they need. The result is that all boys, with very few exceptions, get all the sleep that they need.

As all the boys are forbidden to smoke it is most likely that the boys are in the same position in this respect. We do admit, however, that is entirely

possible for one or two boys to steal away and smoke.

Regarding the avoidance of infection it is well known that everyone has, inherently, a certain amount of protection against infection. Other immunity is acquired by vaccination against various diseases. Hence we can not say that any one is as well off as every other one.

But we will state that there wer no serious infection in camp beyond ringworm, colds, and sore throats. So we can say that, because of the environment, no one was subjected to any serious infection.

An analysis of the effect that ringworm, colds and sore throats had on the average increase in health, as shown by the physical fitness index, shows that they did not cause any appreciable loss as a whole. (see page 56)
It is admitted that some casses suffered a more serious loss than others in health as a result of these ailments.

In most cases, the mental attitude of the boy is quite easily discernible by the boys' reactions toward the campers, the program, the leaders and his special interests and ambitions.

Such a means of study is purely subjective but careful analysis will show that it has a fair basis of validity. By such subjective study it is very possible for us to miss one or more boys who do not have the proper mental attitude. Yet we feel that one or two boys among so many is not a very large proportion.

All this leads us to the discovery that exercise and menatl attitude are two great variables of all the factors. By carefull analysis of the individual case problems we have removed all cases that were primarily mental problems. This leaves only mental attitude as is related to intensity of interest and participation; a variable that we can not eliminate or measure. However, because of their interest in camping and its activities we may feel rather well assured that the remainder of the campers is not subnormal. At least not so much so that it affects very definitly and seriously the health of the boy.

The amount of exercise a boy gets depends entirely upon himself and is varied according to his interests. A boy may participate in all or some of the following according to his desires:

Swimming periods, track and swimming meets, baseball, basketball, volleyball, soccer, canoeing, hiking, quoits, Vagabond Hikes or the Canoe trips.

If all this is true it is but a step further to state that when all other factors are present in the proper proportion then exercise, governed by mental attitude, determined the health of the individual campers.

This leaves the question in our minds: How much exercise do we require for the development of the greatest health?

EXERCSIE---A MEANS OF IMPROVEMENT OF HEALTH

A. Improvement From Below Normal to More Nearly Normal and Above Normal.

Everywhere in education there has been much study regarding individual needs and differences in boys and girls. Why shouldn't this sound educational proceedure be used in studying the imporovement and development of health? This is particularly true of camps who profess health as an important objective of their work.

Our greatest interest in health improvement should lie with those who have the greatest need for improvement.

Our greatest interest in health improvement should lie with those who have the greatest need for improvement.

Sixteen cases, those cases showing the greatest improvement in health from below normal, show that exercise undoubtedly plays a very large part in the development of health when all the other factors are present and more or less constant for all.

The table for the sixteen campers having the greatest change in health, on page 74 shows the number of times each boy competed in track and swimming meets, gone swimming, used the canoes, and whether or not the boy has participated in any of the Vagabond Hikes or Canoe Trips.

When the above chart is compared with the one on page 73 which shows the amount of participation in the same items for the sixteen campers who had the smallest gains in health from below normal to more nearly normal,

normal and above normal we immediately perceive that there is a noticable difference in the amount of exercise the second group has taken.

This showes definitly that those who get most exercise in camp have improved correspondingly more in health, in most cases, than those who received less exercise.

We find that the average increase for those campers who improved their health, as shown by the physical fitness index, from below normal was sixteen and one-tenth points. This increase is three points more than the average increase and the highest of all the groups. (see page 73)

TABLE NUMBER VII

Frequency Table # 7 Showing the amount and types of exercise the sixteen campers had, who had the least improvement in health from below normal to nearly normal and above.

NAME	P.F.I #1	P.F.I #2	CHANGE	USE OF CANOES ½ HRS.	VAGABOND HIKES	CANOE TRIPS	NO. TIMES SWIMMING	TRACK EVENTS ENTERED.	SWIM. EVENTS ENTERED
W.A.	92	103	11	6	0	X	20	12	7
J.B.	89	96	7	0	0	0	16	0	0
H.D.	87	90	3	0	0	0	8	2	0
T.D.	78	94	6	9	X	0	28	9	13
R.F.	90	92	2	12	0	0	12	0	0
W.G.	82	91	9	0	0	0	5	4	0
E.H.	90	91	1	0	0	0	11	0	0
N.J.	87	93	6	0	0	0	16	2	0
W.J.	83	93	10	10	X	0	22	16	0
J.P.	89	95	6	3	X	0	10	3	1
J.P.	99	101	2	8	X	0	50	2	0
J.P.	90	101	11	9	X	0	43	1	0
G.P.	65	74	9	8	0	0	36	10	0
A.R.	78	82	4	3	0	0	5	6	0
W.S.	86	90	4	0	X	0	61	2	0
G.S.	92	98	6	6	X	0	45	5	1

TABLE NUMBER EIGHT

Frequency Table # 8 Showing the amount and types of exercise the sixteen campers who had the greatest improvement in health from below normal to normal and above, took. X indicated participation once.

NAME	P.F.T #1	P.F.T #2	CHANGE	USE OF CANOES HRS	VAGABOND HIKES	CANOE TRIPS	NUMBER OF TIMES SWIM.	TRACK EVENTS ENTERED	SWIM. EVENTS ENTERED
D.B.	88	109	21	3	X	0	36	2	0
J.B.	91	103	12	12	0	X	88	10	17
W.B.	85	100	15	20	X	0	85	0	0
A.C.	92	110	18	5	0	0	6	9	0
R.F.	79	107	28	0	X	0	10	2	0
N.K.	89	130	41	6	X	X	55	18	2
J.L.	84	112	28	4	X	0	10	10	0
M.M.	94	127	32	5	0	0	16	4	0
W.P.	88	115	27	11	2	X	88	19	16
J.M.	90	101	10	5	0	X	25	0	0
E.R.	89	140	51	27	X	X	85	4	17
D.T.	90	124	34	0	X	0	30	5	0
R.W.	94	124	30	13	X	0	42	16	11
J.W.	74	101	27	11	0	X	101	0	0
R.Z.	80	108	28	3	0	0	17	8	8
P.B.	86	109	23	15	X	X	43	8	0

B. IMPROVEMENT FROM NORMAL TO HIGHER OR ABOVE NORMAL.

As mentioned before, health is classified, by means of the physical fitness test, into three classes or groups; below average, average and above average. This classification is possible becuase of the fact that the P.F.I. is representative of how the individual compares with the average for his weight, height and age group.

It is very important to remember that when we speak of a boys' health as being above the average we mean that the boys' health is above the average compared to the average of boys in his age, height and weight group.

It is felt that it is entirely possible to develop a degree of health beyond that of the average if we have the factors of health present and an inheritance that will not restrict the individausls development. We all know that our capacities for achievement are limited by our inheritance. This is also true of health.

When we study the survey of the health of the individual boys at the camp studied (page 36) we can not possibly deny that some of the boys have gone well above the average in health.

One of the findings of the survey shows that those who were rated above average and who raised their score still higher had an average increase of ten and a half points. The range, above average, considering the top most point isn the average zone, is forty points.

I Above Average To Still Higher.

In order to discover the part activity and exercise played in the development of health for twelve campers, who had a P.F.I. as the result of the first test, which was classified as above average, and who increased their health sufficiently higher we will have to turn to table ten page eighty.

The average increase for this group was ten and a half points as compared to eight points for the entire number tested.

Of the boys studied in this group only four boys did not participate in either a Vagabond Hike or a Canoe Trip.

All but two boys used the canoes during their stay at camp for varying periods of time.

Every boy went swimming at least ten times. It is important to note that some of the boys remained in camp for only short periods of time while others remained for the entire season.

Only one boy failed to enter any track and field events. The number of events a boy entered was governed by his interests.

All but one boy entered the swimming meets.

For specific participation and results see chart number 9 on page 79.

II Changes From Average To Above Average.

There are thirteen campers who came in under this grouping. All of these boys had socres that were average on the first test but who, as a result of their stay at camp, raised their scores to above average.

In all but one or two instances, all these cases, too show a good deal of activity, participation and exercise.

It is interesting to note here as well as in the previous group that most of the campers went on either both or one of the special trips, that is, Vagabond Hikes or the Canoe Trips.

Of these, who did not go on any of these trips, there were but five.

All but two of the campers used the canoes while at camp.

All but two of the boys went swimming more than nineteen times. These two boys had the smallest increase in physical fitness.

Everyone of the boys entered at least one swimming event in the swimming meets.

This shows a very decided participation in activity with the result of a great deal of exercise.

It is to be noted that this group has the greatest frequency of participation in physical activity and also

that the increase in health, as shown by the physical fitness test, was greater than in any other group.

For more definite participation and changes see chart number 10 on page 80.

This can bring but one conclusion to our minds. The greater the amount of exercise in a number of varied events or activities, the greater the improvement in health provided all other factors are maintained in their proper proportion.

TABLE NUMBER IX

Frequency Table # 9 Showing the activities entered and the frequency of participation in these activities for the thirteen campers who had a health index, as indicated by the physical fitness index, of average on the first test who raised to above average during their stay at camp.

NAME	P.F.I # 1	P.F.I. #2	CHANGE	CANOE TRIP	VAGABOND HIKE	CANOES ½ HRS	NUMBER OF SWIMS	TRACK EVENTS ENTERED	SWIM. EVENTS ENTERED
T.A.	117	135	18	X	X	21	60	35	6
N.L.	125	138	13	0	0	6	10	16	3
R.F.	124	148	24	0	X	0	30	13	2
W.H.	111	128	17	X	0	6	20	18	12
O.M.	117	134	17	0	X	5	30	19	2
P.B.	117	128	11	X	0	8	47	25	4
P.F.	120	135	15	0	0	18	71	16	3
R.G.	115	157	42	0	0	2	21	10	2
L.M.	112	138	26	X	X	14	41	21	15
A.M.	110	132	22	X	X	5	48	19	12
K.S.	114	126	12	X	0	2	7	10	2
H.T.	100	132	32	0	0	0	19	15	1
J.W.	109	132	23	0	0	2	24	11	1

TABLE NUMBER X

Frequency Table # 10 Showing the activities wntered and the frequency of participation in these activities for the twelve campers, who had a health average, as indicated by the physical fitness test, of above average on the first test, and raised it still higher as the result of their stay at camp.

NAME	P.F.I #1	P.F.I #2	CHANGE	CANOE TRIP	VAGABOND HIKE	CANOES ½ HRS.	NUMBER OF SWIMS	TRACK EVENTS ENTERED	SWIM. EVENTS ENTERED
W.C.	154	165	11	X	X	5	46	20	10
E.C.	135	142	7	X	X	5	81	14	12
M.D.	128	143	15	0	X	4	15	4	7
E.F.	127	139	12	0	0	0	10	9	2
L.H.	150	159	9	0	X	6	20	19	14
N.H.	137	151	14	0	X	2	10	14	4
L.K.	134	144	10	0	X	10	45	0	11
S.L.	128	139	11	0	0	3	36	13	16
N.L.	132	136	4	0	X	2	23	10	0
D.M.	135	137	2	0	0	6	15	19	4
W.S.	134	153	19	0	0	0	16	20	2

RELATIVE VALUE OF THE PHYSICAL ACTIVITY PROGRAM PRESENTED TO THE CAMPERS.

It has been previously mentioned that the camp studied had no stated requirement as regards exercise beyond the fact that each boy, unless he was excused by the camp doctor, had to participate in two hikes during each period. One of these hikes was a day hike and the other an overnight hike.

As we have discovered, exercise plays a most important part in the development of health. In fact, exercise coupled with enjoyment of what one is doing, provided other factors are constant, determines ones' health.

Dr. Walter H. Eddy states: "If a boy or girl is to return at the end of his sojourn health and fit for the winters' work, we expect to find a definite program of exercise." (1)

This in a very brief way, shows that the medical profession acknowledges the value of exercise in the development of health in an organized summer camp. Mere activity, however, is not enough. Specific activities seem to have greater possibilities for health development than others.

J.B. Nash illustrates this when he says: "We must be able to recognize the activities which carry on, expand and grow. Likewise we must recognize the activities

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(1) Eddt, Walter Summer Camps For Your Children
Good Housekeeping May 1932

which present blind alleys. The value of activities will have to be studied in the light of their end results on people." (2)

Heatherington says: "By controlling the intensity and the duration of big muscle activity we can control indirectly and to a fine degree heightened functional activities or exercise of the organic mechanisms and nutritive processes." (3)

J.M. Tyler says: "We must never forget that the development of the muscular system carries with it the development of our most important viscera, kidneys, lungs, heart and blood bessels and as we shall see later the brain itself." (4)

The value of the exercise as a factor in the development of health has been clearly shown by the results of the test experiments at the camp studied and also by the quotations from a few of our authorities in the field.

Because of the fact that some of these activities are peculiar to the camp itself, it will be necessary to explain them and also the extent to which they were followed.

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(2) Nash, J.B. NATURE AND SCOPE OF EXAMINATIONS P 22

(3) Heatherington THE SCHOOL PROGRAM IN PHYSICAL ED. P 37

(4) Tyler, J.M. GROWTH AND EDUCATION P 26

1) Vagabond Hikes. During the camping season three of these hikes were conducted. This past season forty-nine boys left camp at noon of one day and hiked and camped out from camp for three days. The hike was made throughout the surrounding country and was from forty to fifty miles in length.

During the entire trip the boys slept out in the open without shelter and cooked their own meals. The purpose of the hike was to teach the boys what real camping was and also to give them an experience that they would never forget.

Although these hikes have been conducted for only three years we have boys and leaders returning especially to participate in them. In time to come they promise to form part of the camp tradition.

Many people seem to feel that such a trip is entirely too much for growing boys. Among these are J. Edward Sanders, who says;

"Long distance hikes represent an activity where physical strain, inadequate dietary standards, inadequate sleep and rest may reach a maximum." (1)

It is most interesting to notice the results of the experiment conducted. Those boys, forty-nine in all who participated in these hikes had an average increase in physical fitness of ten and three tenth points. When this is compared to the general increase of eight points we

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1) Sanders, J. Edward SAFETY AND HEALTH IN ORGANIZED SUMMER CAMPS. P 127

can readily see that it has not been harmful but in fact very beneficial.

2) The Canoe Trips. The camp, two or three times each season, sends a group of boys out on the Hudson River for a three day trip.

The trip is either up or down the river or perhaps a little of each. The boys, during this trip too, cook their won meals and sleep out in the open without shelter.

Three full days of paddling a canoe gives, as those who have done it will say, a good deal of exercise. Each of these trips cover from fifty to sixty miles according to the tide and wind conditions.

The conditions for sleeping and eating that Sanders applies to a hike apply here too. The average increase, for the twenty-five boys who composed these groups, was thirteen and two-fifth points. The average increase was even higher than the Vagabond Hike group, which in turn was higher than the average increase for all campers.

3) General Use Of The Canoes. Each day there were two canoeing periods when the boys could use the canoes on the lake. One period, the afternoon, lasted for two hours, from two to four P.M. and the other one, the evening, from six to seven-thirty, one and a half hours.

The only restriction in the use of the canoes was that one, in order to use them, must pass a swimming test and also attend instruction in their use.

For a comparison of the value of canoeing those who used the canoes during their stay at camp were divided into two groups, one was composed of the boys who used the canoes less than five hours and the other group composed those who used the canoes more than five hours.

In the first group there were forty-six boys. The average number of hours that they used the canoes was one and seven-tenths hours. The average increase in physical fitness was four and three-tenths points.

The second group had thrity-one members. The average number of hours they used the canoes was eight and one fifth hours. The average increase in physical fitness for this group was fourteen and three-fifths points.

4) The Canoeing Merit Badge. This merit badge is one that requires a good knowledge of canoeing skills. One must be able to portage a canoe, pack a canoe and how to paddle under all sorts of conditions. Much practice is necessary, as a rule, for successful completion of this test.

During this season thirteen boys passed this merit badge test. The average increase in physical fitness was twelve points.

5) The Swimming Meets. As in the classification of the use of canoes there were two groups formed. One of these groups composed all boys who participated in from one to ten swimming meets during their stay at camp and the other those who entered ten or more events.

These swimming meets were held once each two week period and were composed of speed and long distance swims and also diving.

For the first group the average participation was five events and the average increase was two and six-tenths.

The second group had an average participation in twelve events and the increase in physical fitness was sixteen and eight-tenths.

No boy was allowed to enter more than four events, including diving, in one meet.

6) The Swimming Instruction. All swimming aside from the morning dip, the morning and afternoon general camp swims were classified as to the type of instruction given. Hence the classification is very easy in this case, namely: Beginners Swimming, Fifty Yard Swim, Swimming Merit Badge, American Red Cross Life Saving, and a twenty yard speed swimming test.

For each of these tests varying amounts of instruction and practice were necessary. It is interesting to note that those that required any small amount of practice had a correspondingly small increase while those that required much more practice had increases of a greater nature.

A-The Beginner Swimming Test. This group was composed of fifteen boys who were unable to swim when they came to camp. All those boys learned to swim sufficiently well to

pass the American Red Cross requirements for beginners in swimming. The average increase in physical fitness for this group was seven and one-tenth points.

B- The Fifty Yard Swimming Test. The requirement for this test is merely to swim fifty yard. Not a requirement is made as regards time, form, or stroke. It is possible for a boy to stop and float, change his stroke, etc. This enables a boy to make the swim with a minimum of effort. If a boy can swim even a lettle he can pass this test by encouragement and "never say die spirit". A boy needs little or no training or practice for this test.

There were twenty-seven boys who passed this test. The average increase in physical fitness was three and two-tenths points.

C- The Swimming Merit Badge. This is a special test of a swimming ability considering endurance and form. It is necessary for the boys to get a great deal of practice and instruction before they can pass this test.

Twenty-four boys came in under this classification and had an average increase of nine and seven-tenths points.

D- The Life Saving Group. This group was composed of twenty-five boys who practiced for and passed the American Red Cross Life Saving Award. Attendance for one hour and a quarter each day for two weeks was compulsory. Much outside practice was also necessary for the boys to complete the work required.

The above increase in physical fitness was thirteen and six-tenths points.

E- Twenty-yard Speed Swimming Test. This group of boys numbering twenty-three had to practice speed swimming. For most part of the boys this mean a great deal of time and effort. The boys had to swim twenty yards under a certain time limit set according to their weight and height group.

These twenty-three boys had an average increase in physical fitness of fourteen and four-tenths points.

F- Team Games. It has been almost impossible fro us to keep a record of participation in team games because of the fact that they are not usually regularly organized contests. If a boy felt that he would like to play baseball he would gather together a few campers and under the direction of a leader the game would be played. This was true of all team games including baseball, volleyball, basketball, group games, soccer, touch football, etc.

We have taken, however, as an indication of participation in a particular activity the answeres to the questionnaire number two which asked, "In which sports did you participate most while at camp? Please place first the one you played most, etc."

The questionnaires, in most cases, seemed to indicate that many of the boys participated in almost all of the team games. Due to the fact that most of the games were conducted during the same period the amount of participation one would have in some of the games would be almost insignificant

we decided that we would consider only the first two games mentioned by the boys.

The results of the questionnaire and an analysis of the tests for these boys shows the following:

1) Nineteen boys mentioned that they participated in basketball more than any other game. The average increase for these boys was twelve points.

2) Ten boys replied that they spend most of their time in track and training for track. These boys had an average increase in physical fitness of eleven and a half points.

3) Thirty-one boys stated that they participated most in baseball. This group had an average increase of eleven and three-tenths points.

4) Ten boys indicated that they had participated most in touch football. These boys had an average increase of ten points.

5) Twenty-two boys mentioned that they participated in volleyball more than any other sport. The average increase for this group was nine points.

6) The last sport mentioned frequently enough to be considered here was soccer. Eleven boys participated in this. The average increase for this group was seven and one-fifth points.

Probably the chief reason for this low average was due to the fact that three boys who had participated in

soccer sprained their ankles playing this game. If we turn to the chart on page 56 showing the average increase of boys with this ailment we find that it was only eight-tentsh of a point.

We must remember that these team games mentioned do not represent the entire camp but only those boys who returned answered questionnaires.

For more complete consideration of participation in team games turn to the chart on page 92. This chart includes the entire report of boys as regards the games in which they participated.

G- Track Events. Each week, or rather two week period, a track meet was held. The boys could enter all or just as few events as they pleased. These events varied greatly from running, jumping, to shot put, push-ups and pull-ups. In each meet there were from eight to ten events.

The average number of events participated in was ten. The average increase in physical fitness was nine and one-fifth points. This when comapred to the boys who participated in track as a particular haobby and the sport that interested them most is very high. As mentioned before, those that participated in track most had an average increase of eleven and a half points. This is only two points more than for all boys in camp who participated in track events---some ninetly odd boys.

Summary:

An analysis of the findings of the experiment seems to show that the various activities should be graded in the following manner, high to low, in the development of health:

(1) General canoeing (more than five hours) (2) Speed swimming against time, (3) Life Saving, (4) Canoe Trips, (5) Swimming Meets, (6) Canoeing Merit Badge, (7) Basketball, (8) Track, (9) Vagabond Hikes, (10) Touch Football, (11) Swimming Merit Badge, (12) Volleyball, (13) Soccer, (14) Beginners Swimming, (15) Canoes, less than five hours. (16) Fifty Yard Swim, (17) Swimming Meets, less than ten events.

When the above results are analyzed it will be found that those events which have the attributes of all factors present and require the greatest amount of effort and exercise are those that rate the highest in the development of health.

TABLE NUMBER XI

Frequency Table # 11 Sports mentioned by boys as the ones they played most. The frequency is placed in columns as to whether they lost, remained constant, or gained in health as shown by the physical fitness index.

Sport	Loss	Constant	Gain	Total
Swimming	5	1	37	43
Baseball	5	1	31	37
Volleyball	6	2	28	36
Basketball	3	1	17	21
Soccer	5	0	14	19
Touch Football	1	1	11	13
Track	0	0	10	10
Quoits	0	1	6	7
Hiking	1	0	5	6
	26	7	159	192

CORRELATION BETWEEN GAIN IN WEIGHT AND HEALTH IMPROVEMENT.

Many camps state somewhere in their camp catalogue something of this sort--- our boys gained a total of some one hundred and five pounds during the last camping season.

What does this mean? Does it mean that a boy who lies around inactive, or comparitively so, and gains five or ten pounds, mostly in fat, is more healthy than the boy who has been very active and has remained constant or even lost slightly in weight?

J. Edward Sanders says: "Weight when compared to some average standard seems to be an inadequate index of nutritional status and health." (1)

What evidence, if any, necessarily shows that a gain in weight makes a boy more healthy?

The scattergram on page 95 compiled from the results of the tests conducted at the camp investigaged shows very definitly a negative correlation.

There are cases of gain inweight and gain in physical fitness, gain in weight and loss in physical fitness, loss in weight and loss in physical fitness, loss in weight and gain in physical fitness, constancy in weight and gain and

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1) Sanders. J. E. SAFETY AND HEALTH IN ORGANIZED SUMMER CAMPS P. 128

loss in physical fitness, constancy in physical fitness and gain and loss in weight.

From our observation the value of gain in weight over a long period of time is to show that growth is present. Not that growth is necessary for health, for it is not, but that generally speaking growth is one of the signs of health in children.

Summary:

There is, as a result of this investigation in the camp studied, no reason to believe that gain in weight plays any definite part in the development of health at summer camps.

Table — 12

Scattergram Showing The Correlation Between Gain In Weight And Improvement Of Health During A Stay In The Camp Studied.

Weight Pounds	3	6	9	12	15	18	21	24	27	30	33	36	39	42	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	P. & I.
10																																		0
9																																		0
8							1												1															2
7		1	2												1																			4
6			1															1		1														3
5				1																	1					1								3
4						1										1	3	1	1	2			1											10
3	1		1	2		1										1	1	1		1	1	1	1									1		13
2	1	1	2													1		3	2	2	2	1							1					16
1		2	2	1	1				1					1	2	4		1	4				2			1			1					22
0		1	1									1				1	5	2	6	4	2	2	2	1	2		1							31
-1	1	1		1						1						1	4	2	2	3				1										17
-2																1	1		1				1	1										5
-3		1		1																														2
-4															1	1		1	1	1														5
-5		2						1																	1									4
-6																							1		1									2
-7																				1														0
-8																																		1
-9																																		0
-10		1																																1
-11																	1																	1
Frequency	3	10	9	5	1	2	1	1	1	1	0	1	0	1	4	11	15	12	18	15	6	4	8	3	4	2	1	0	2	0	0	1	0	

THE LENGTH OF STAY AT CAMP FOR OPTIMAL HEALTH DEVELOPMENT.

J. Edward Sanders, in his investigation regarding the length of periods of stay at camp and the effect they had on health says:

"State briefly the data indicated that the longer children remain in camp the more likely they were to become ill/" (1)

If Sanders' findings, in the investigation be made of one hundred and fourteen camps, are indicative of the conditions in most camps then camping has probably lost claim to one of its greatest aims---health development.

However, it is important to understand that Sanders apparently defines health as absence from disease, illness and injury. He gives no direct definition of health in his survey.

The great question that lies before us is the effect that contagious diseases, which were not present in the camp studied but present in Sanders study, plays in health achievement and development.

Quite naturally it is almost impossible for us to discover the effect of contagious disease on health because we can not experiment and test individuals who have had a specific disease of this sort. It is impossible too, to base any conclusions on a few "hit or miss" cases.

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1) Sanders, J. Edward HEALTH AND SAFETY IN ORGANIZED SUMMER CAMPS. P 18

Our chief interest, the experiment, deals with the development of health in one particular camp studied. When the results are discovered then we will be able to make possible generalizations which may apply to other camps.

Table number13 on page 78 shows the average P.F.I. on the first test, the average P.F.I. on the second test, and the average change for each of the following periods of stay at camp:

(1) Two weeks

(2) Three weeks

(3) Four weeks

(4) Six weeks

(5) Eight weeks.

An interpretation of the table will show that the camp studied those campers who remained eight weeks had the greatest improvement in health, as shown by the physical fitness test.

TABLE NUMBER XIII

Frequency Table # 13 Showing the average Physical Fitness Index, on the first test, the average Physical Fitness Index on the second test, and the average change in Physical Fitness as the result of varying periods of stay at camp.

Length of Stay	First P.F.I. Average	Seoond P.F.I. Average	Change Average.
Two Weeks	108	113	5
Three Weeks	108	121	13
Four Weeks	110	116	6
Six Weeks	109	123	13
Eight Weeks	95	111	20

Note: There were five boys who stayed five weeks. And one boy who stayed seven weeks. These numbers were considered too small to strike an average.

CONCLUSION

In this study an effort has been made to approach questions regarding the validity of health as an objective of the organized summer camp. A recent study, that of J. Edward Sanders, leads one to believe that health is not one of the valid achievements of the summer camps. It was felt, that by a more or less scientific study in an organized summer camp we would be able to clarify the situation somewhat.

A survey of the literature in the field showed that there was a dearth of material pertinent to a study of this type. Therefore, questionnaire surveys were made of the boys; a program of testing, for the entire summer, was instituted; and also a record was kept of the activity on the part of each boy during hsi stay at camp, to sup lement the material obtained from other sources on camping and health.

The results of these four efforts may be discovered throughout the study and more briefly in the summary.

The following summary may be made of the findings of this study:

1) There is good evidence that health gains were made during a period of stay in the camp studied. One hundred and five boys made very definite gains in health.

2) There is evidence that the program presented did not fit the individual needs of all the boys. This

can be seen by the fact that thirty-one boys lost in health.

3) There is good reason to believe that it is possible by means of health precautions, to eliminate almost all infectious diseases in a summer camp.

4) There is every reason to believe that the prime factors contributing to health; shelter, fresh air, food, climate, medical attention and sanitation were present in the proper degree at the camp studied for the development of health.

5) There is reason to believe that the following factors varied for all boys: Exercise, infections and mental attitude.

6) Enjoyment in what one does plays a very important part in the development of health.

7) Sore throats, colds, cuts, infected wounds, etc. did not play a very disturbing part in the prevention of increase in health in the camp studied.

8) Those boys who did not get sufficient exercise showed very small increases or lost very definitly in health.

9) Long hikes and canoe trips had a benefical rather than a detrimental effect on health.

10) There seems, as a result of this study, in this particular camp no correlation between gain in weight and improvement in health.

11) The eight week stay, in this study, was the period of stay that proved to be the most beneficial.

12) Merely living in a rural environment does not in itself guarantee improvement in health.

13) Programs of activity should be arranged and controlled so as to keep in mind the physical needs and limitations of the campers participating.

14) A program of required activity, suited to the individual needs, should be insituted and enforced to develop health.

15) There should be ample time provided for rest and sleep.

16) There should be a variety of food enabling the boys to select at least a part of their meal.

17) Competitive programs of activity should be very carefully controlled because of the fact that they often lead to physical fatigue and "mental exhaustion" at the end of the season.

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